

CLAIMS

We claim:

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1. A perpendicular recording head, comprising:
a main pole; and
5 means for concentrating magnetic flux from said main pole onto a small surface area of a magnetic recording medium.
 2. A perpendicular recording head, comprising:
a nonmagnetic substrate having a surface; and
10 a main pole comprising a magnetically permeable plating covering said substrate's surface.
 3. The perpendicular recording head according to claim 2, wherein said magnetically permeable material is an electroplated surface covering.
 - 15 4. The perpendicular recording head according to claim 2, wherein said nonmagnetic support defines a step topology within said recording head.
 5. The perpendicular recording head according to claim 2, further comprising
20 an electrically conductive coil adjacent to said main pole, said electrically conductive coil being electrically connected with a power supply.
 6. A perpendicular recording head according to claim 2, wherein said head is a write head.
 - 25 7. A perpendicular recording head according to claim 2, wherein said head is a magnetoresistive read head.
 8. A perpendicular recording head according to claim 2, wherein said head is a
30 giant magnetoresistive read head.

9. The perpendicular recording head according to claim 2, wherein said main pole has a width, and said width does not exceed 300 nm.

5 10. The perpendicular recording head according to claim 2, wherein said main pole is made from a material selected from the group consisting of permalloy, Ni/Fe, and nitrides.

10 11. A method of making a main pole of a perpendicular recording head for use with a magnetic recording medium, said method comprising the steps of:
providing a nonmagnetic substrate having a surface; and
covering said substrate's surface with a magnetically permeable material.

15 12. The method according to claim 11, wherein said step of covering said substrate's surface with a magnetically permeable material is performed by plating.

13. The method according to claim 11, wherein said magnetically permeable material covering said substrate's surface is magnetically soft.

20 14. The method according to claim 13, wherein said magnetically permeable material covering said substrate's surface is permalloy.

15. The method according to claim 13, wherein said magnetically permeable material covering said substrate's surface is Ni/Fe.

25 16. The method according to claim 13, wherein said magnetically permeable material covering said substrate's surface is a nitride.

17. The method according to claim 11, further comprising the step of creating a step topology within said recording head before the step of covering said substrate's surface.

5 18. The method according to claim 17, wherein said step of creating a step topology is performed by photolithography of the nonmagnetic support in advance of depositing said magnetically permeable coating.

10 19. The method according to claim 17, further comprising the step of securing said nonmagnetic support to a joint before said step of creating a step topology within said recording head.

20. The method according to claim 19, wherein said step of securing said nonmagnetic support to a joint is performed by vacuum deposition.

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